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## Trocar site hernia after laparoscopic salpingectomy: A case report

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### Abstract

Laparoscopic surgery can be associated with a specific type of incisional hernia through the trocar site causing complications such as small bowel obstruction. Trocar Site Hernia (TSH) is defined as an incisional hernia which occurs after minimally invasive surgery on the trocar incision site. In 2004 Tonouchi classified trocar site hernias into 3 types: Early onset type; late onset type; Special type. This is a case of 43 yrs old presented in emergency with the complaints of pain all over the abdomen one day. On examination diffuse tenderness was present all over the abdomen and rebound tenderness was present, a 7 x 3 cm swelling was present in the right iliac fossa. She had a past history of laparoscopic salpingectomy for left sided ruptured ectopic pregnancy six years back. Routine blood investigations and USG done which showed provisional diagnosis of incarcerated incisional hernia was made. Patient was taken up for emergency surgery within 24 hours after initial stabilization. Hernioplasty with Prolene mesh repair was performed.

**Keywords:** laparoscopy, mesh repair, trocar site incisional hernia (TIH), hernioplasty

### Introduction

Laparoscopic surgery has quickly evolved and is now of the gold standard procedure and most preferred mode of access to the peritoneal cavity [1, 2]. In spite of minimal invasiveness, some laparoscopy related complications can be attributed directly to abdominal access with laparoscopic trocar. Post site hernia is one of the complications i.e. hernia at the insertion site of the cannula [3]. Prevalence of herniation by laparoscopic surgery is reported to be 0.0002% - 6% [3, 4]. Trocar site hernia is rare but can be a potentially dangerous complication of laparoscopic surgery ranging from early small omental herniations to delayed hernia formation with or without bowel entrapment [2, 3]. Most trocar site hernia are formed in sites greater than or equal to 10 mm with only few cases reported of 5mm site herniation [4].

### Case report

Mrs. XX, 43 yrs old presented in emergency with the complaints of pain all over the abdomen one day. Pain was sudden in onset and associated with 2 episodes of vomiting. There was no history of fever and bowel and bladder habits were normal Patient had also noticed a swelling in the right lower abdomen (right iliac fossa) since few weeks.

**Past History:** She was a known patient of diabetes mellitus, controlled on regular medication. She had a past history of laparoscopic salpingectomy for left sided ruptured ectopic pregnancy six years back. Details of previous laparoscopic surgery: Performed with 10mm camera port Palmer's point and two 5mm working ports below the umbilicus. Omental adhesions were present and adhesiolysis was done to reach the site of the fallopian tube. Left sided salpingectomy was done. One 5mm port was converted to 10mm to retrieve the specimen. Rectus sheath was closed using 1-0 Vicryl. Skin closure was done with silk.

**On abdominal examination:** Diffuse tenderness was present all over the abdomen and rebound tenderness was present. A 7 x 3 cm swelling was present in the right iliac fossa. Cough impulse was present over the swelling. The skin over the swelling had a scar. The swelling was not reducible. Examination of other systems was normal.

**Investigation:** Blood investigations were within normal limits.

**USG abdomen:** Anterior abdominal hernia.



**Fig 1:** Herniation seen through incision

**With the above findings and with the presence of a scar over the irreducible swelling, a provisional diagnosis of incarcerated incisional hernia was made.**

**Course:** Patient was taken up for emergency surgery within 24 hours after initial stabilization.

**Intra-operative findings:** Right iliac fossa incisional hernia through the port incision and the contents of the hernia were small bowel and omentum.

**Operation:** Hernioplasty with Prolene mesh repair was done.

**Post-operative:** period remained uneventful and patient was discharged on 5<sup>th</sup> post-operative day.

### Discussion

Classification of trocar port site hernias was suggested in 2004 [4].

- i) Early onset trocar port hernia was defined as having dehiscence of fascia and peritoneum within 2 weeks, most commonly with small bowel obstruction.
- ii) If hernia occurs after 2 weeks and has dehiscence of fascial plane with a sac consisting of peritoneum, then it is classified as late onset type port site hernia.
- iii) Third category includes special type of hernia which have dehiscence of the whole abdominal wall [3, 4]

Factors which influence intra-abdominal hernias after laparoscopic surgery are the number of trocars used, and their diameter and the duration of the procedure (longer the duration, higher the risk). The risk of having an incisional hernia also depends on the aponeurotic defects in the trocar plane (incomplete closure of fascia), the insertion technique, the method of withdrawing the trocar, midline trocars, stretching the port site for organ retrieval and the effect of a partial vacuum while withdrawal of port. Other factors like obesity, poor nutrition & infection at port site are also related to increased risk of incisional hernia [2, 3, 4].

It is well known that using 10 mm and larger trocar results in increased risk of hernia. Reports have shown a lower prevalence of hernias with the use of a para median incision and non-bladed trocars which a conical tip [3]. Nevertheless port site created by a non-bladed trocar requires fascial closure [5].

There are certain measures which can prevent trocar port site hernia [4, 5, 6]. Whenever possible, one should use trocars of smaller diameter, avoid extreme manipulation of trocar [7], introducing trocars with a Z- incision technique, closing fascial defect, direct vision deflation air and removing of trocar.

Most authors recommended deflation of pneumoperitoneum prior to port removal so that omentum and intestine would not be drawn into the facial defect.

The trocar must be removed under direct visualization, and the wound should be digitally explored, assuring that no bowel has been entrapped. Adequate closure of the fascia for wounds larger than 10mm is necessary. Generally closure of fascia in 5 mm wound is questioned [12] but many surgeons recommend closing 5mm port in patients who are older than 60 years, BMI > 25, duration of surgery more than 90mm & extensive trocar manipulation [7].

The peritoneum should be incorporated into the fascial closure to obliterate the pre peritoneal spaces, thereby preventing herniation.

### Conclusion

This case has been highlighted here because of the late presentation – six years from the primary surgery. The patient was relatively young (43 yrs.) with good nutrition and not obese. The probable reason for herniation could be extension of port size for organ retrieval from 5 mm to 10 mm. Port herniation is a very rare complication of laparoscopic surgery & more so delayed presentation is quite rare as in our case.

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